The principles of sustainable agriculture (1st Year of study, 1st Semester)

Credit value (ECTS) 2

Course category
Fundamental discipline

Discipline Code: A.EMIAIA.F.107

Course holder:
Prof. Denis ȚOPA, PhD

Discipline objectives (course and practical works)

The course presents the concept of sustainable agriculture and implications of implementing this system in accordance with its ecological vocation and social and economic needs.
Students will have to acquire knowledge about the principles and methodology of sustainable agriculture systems and to evaluate the impact and the consequences of different systems on natural and agricultural ecosystems.
The practical works and debates seek to clarify the levels of application of sustainable agriculture and to appreciate the environmental, economic and social aspects of its implementation.

Contents (syllabus)

Course (chapters/subchapters)
The object of study, the history and the importance of sustainable agriculture.
The components of sustainable agriculture. Quantification of sustainable development.
Conservation and regeneration of soil.
Effects of climate change on soil and relationships of these effects.
Object and concept of farming system. General issues about farming systems and their evolution - traditional/modern.farming systems.
Sustainable farming system (or integrated) - Principles of sustainable farming system. International organizations and rules of sustainable agriculture. Sustainable agriculture practices.
Machinery and equipment in sustainable agriculture.
Sustainability and sustainability costs. Opportunities for self-support and need support.

Practical works
The presentation of the laboratories: Soil Management (Agrotehnics), Agricultural Soil Physic – ICAM*, Chemistry – ICAM, Mobile laboratory for air quality monitoring, Lysimeter station. Work safety rules; Laboratory equipment and utensils; Standard Operation Precedures in laboratories.
Resources in the context of contemporary society: categories, consumption, environmental impact, trends.
Methods for measuring soil water reserve in different farming systems.
Analysis and assessment of soil compaction.
Machinery and equipment in sustainable agriculture.

Crop rotations: structure and types of crop rotations under different farming systems.
Final colloquium of knowledge evaluation
**ICAM – Institute of Research for Agriculture and Environment*

Bibliography

1. Tehnologii și mașini pentru mecanizarea lucrărilor solului în vederea practicării conceptului de agricultură durabilă, 2007 – Gerard Jităreanu, Ioan Țenu, Petru Cojocariu, Nicola Bria, Iosif Cojocaru. Ed. "Ion Ionescu de la Brad" - Iași.

2. Impactul unor sisteme minime asupra producției și fertilității solului, 2013 – Denis Țopa, Gerard Jităreanu, Costică Ailincăi, Lucian Răus. Ed. "Ion Ionescu de la Brad"- Iași.

3. Dezvoltarea durabilă a agriculturii, 2005 – Pentru Guș, Teodor Rusu. Ed. Risoprint, Cluj_Napoca.

4. Strategii de mediu – Conflictele dezvoltării durabile, 2009 – Viorica Paraschivescu. Ed. Tehnopress Iași.

5. Dezvoltare durabilă, 2020 - Paula Ioana Moraru, Teodor Rusu. Risoprint Cluj-Napoca.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Oral examination	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

Contact

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